

O'Hara, S., Shandas, V., and Wright, E. (2000). The cost of technology-intensive education: A preliminary analysis of studio physics. *Journal of Computers in Mathematics and Science Teaching*, 19(4), 379-396.

Abstract

Information Technology (IT) is changing the face of university classrooms across the country. This change is not simply cosmetic but it affects far more fundamental issues confronting higher education from delivery costs to educational quality to reaching non-traditional students in long distance markets (Massy & Wilger, 1992; Cox, 1998). Rensselaer Polytechnic Institute's Studio Physics has been one of the forerunners in this new IT based approach to education. The main factors that distinguish Rensselaer's approach are: (a) the main application of IT has been in on-campus undergraduate classrooms, and (b) the main goal of IT applications has been to improve the quality of undergraduate education while maintaining delivery costs. This article presents the results of a cost study of studio physics from 1994 to 1997. The results of this study show that studio physics is currently not cost competitive with traditional, large enrollment lecture courses. This is particularly due to the higher instructional personnel costs of studio physics courses which constitute 74% of the overall course delivery costs compared to 58% in traditional lecture format courses. The study identified possible adjustment measures to reduce studio course delivery costs such as increased enrollments, stream-lined course preparations, and staffing changes. A final analysis of the overall performance of studio courses, however, cannot be made without a more complete analysis of the benefits studio courses offer to both educational institutions and students.